CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- At time of the Action: Claims 1-34.
- After this Response: Claims 1, 3-9, 11-41.

Canceled or Withdrawn claims: 2 and 10.

Amended claims: 1, 5, 6, 8, 9, 11-14, 16-24, 28, and 34.

New claims: 35-41.

Claims:

1. (CURRENTLY AMENDED) A method for concealing data within a digital signal, the method comprising:

receiving a first data pattern of discrete values and a second data pattern of discrete values;

imposing a discrete value of the second data pattern over one or more values of the first data pattern;

encoding a third data pattern into the digital signal, wherein such third data pattern is the result of the imposing.

2. (CANCELED)

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3. **(ORIGINAL)** A method as recited in claim 1, wherein the imposing comprises performing a Boolean operation with a discrete value of the second data pattern and one or more values of the first data pattern.

4. **(ORIGINAL)** A method as recited in claim 1, wherein the imposing comprises XORing a discrete value of the second data pattern with one or more values of the first data pattern.

5. **(CURRENTLY AMENDED)** A method as recited in claim 1, wherein

a pattern of discrete values may be encoded into the digital signal in one of multiple discrete states;

the imposing comprises encoding one or more values of the first data pattern into the digital signal into a state that indicates a discrete value of the second data pattern.

6. **(CURRENTLY AMENDED)** A method as recited in claim 1, wherein the digital signal is ~~an digital audio~~ a digital audio signal.

7. **(ORIGINAL)** A method as recited in claim 1, wherein the first data pattern is a watermark.

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8. **(CURRENTLY AMENDED)** A ~~computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 1~~ computer having a computer-readable medium as recited in claim 18.

9. **(CURRENTLY AMENDED)** A method for revealing a covert data pattern of discrete values from an encoded data pattern of discrete values in a digital signal, the method comprising:

receiving ~~the encoded data pattern~~ a digital signal, the signal having an watermark encoded therein, the watermark being an encoded data pattern representing multiple data patterns comprising an original watermark data pattern and a covert data pattern;

extracting a discrete value of the covert data pattern from ~~one or more~~ a plurality of values of the encoded data pattern.

10. **(CANCELED)**

11. **(CURRENTLY AMENDED)** A method as recited in claim 9, wherein ~~a pattern of discrete values may be~~ the encoded data pattern of discrete values is encoded into the signal in one of multiple discrete states;

the extracting comprises decoding a discrete value of the covert data pattern from the digital signal based upon a state of a one or more discrete values of the encoded data pattern.

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12. **(CURRENTLY AMENDED)** A method as recited in claim 9, wherein the digital signal is ~~an digital audio~~ a digital audio signal.

13. **(CURRENTLY AMENDED)** A ~~computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 9.~~ computer having a computer-readable medium as recited in claim 19.

14. **(CURRENTLY AMENDED)** A method for encoding a watermark with a covert message into a digital audio signal, wherein binary bits of the watermark may be encoded into the signal in multiple states, the method comprising:

encoding ~~one or more~~ multiple bits of the watermark into the digital signal into a state that indicates a discrete value of the covert message.

15. **(ORIGINAL)** A method as recited in claim 14, wherein the multiple states are positive or negative modifications to magnitudes of one or more subbands in the frequency spectrum of a sample of the signal.

16. **(CURRENTLY AMENDED)** A method for imposing a covert message into a watermark, the method comprising:

generating multiple watermarks;

~~assigning a watermark to each of possible discrete value for a portion of the covert message;~~

~~selecting a watermark that corresponds to an actual discrete value of a specific portion of the covert message;~~

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assigning each of the multiple watermarks to each of the possible discrete values for at least a portion of the covert message;

selecting a watermark that corresponds to an actual discrete value of at least a specific portion of the covert message;

encoding the selected watermark into the signal.

17. (CURRENTLY AMENDED) A method as recited in claim 16, wherein size of all portions of the covert message is N bits long;

~~quantity~~ number of the multiple watermarks is 2^N.

18. (CURRENTLY AMENDED) A computer-readable medium having computer-executable instructions that, when executed by a computer, perform a method for ~~for~~ concealing data within a digital signal, the method comprising:

receiving a first data pattern of discrete values and a second data pattern of discrete values;

imposing a discrete value of the second data pattern over one or more values of the first data pattern;

encoding a third data pattern into the digital signal, wherein such third data pattern is the result of the imposing.

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19. **(CURRENTLY AMENDED)** A computer-readable medium having computer-executable instructions that, when executed by a computer, perform a method for revealing a covert data pattern of discrete values from an encoded data pattern of discrete values in a digital signal, the method comprising:

~~receiving the encoded data pattern;~~

~~extracting a discrete value of the covert data pattern from one or more values of the encoded data pattern~~

receiving a digital signal, the signal having an watermark encoded therein, the watermark being an encoded data pattern representing multiple data patterns comprising an original watermark data pattern and a covert data pattern;

extracting a discrete value of the covert data pattern from a plurality of values of the encoded data pattern.

20. **(CURRENTLY AMENDED)** An apparatus comprising:

a processor;

a covert-channel-encoder executable on the processor to:

receive a first data pattern of discrete values and a second data pattern of discrete values;

impose a discrete value of the second data pattern over one or more values of the first data pattern;

encode a third data pattern into a digital signal, which third data pattern is based upon the result of the imposing ~~such imposing into a digital signal~~.

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21. **(CURRENTLY AMENDED)** An apparatus comprising:

a processor;

a covert-channel-decoder executable on the processor to:

~~receive a encoded data pattern within a digital signal;~~

~~extract a discrete value of a covert data pattern from one or more values of the encoded data pattern~~

receive a digital signal, the signal having an watermark encoded therein, the watermark being an encoded data pattern representing multiple data patterns comprising an original watermark data pattern and a covert data pattern;

extract a discrete value of the covert data pattern from a plurality of values of the encoded data pattern.

22. **(CURRENTLY AMENDED)** A data encoding system for concealing data within a digital signal, the system comprising:

a receiver for receiving a first data pattern of discrete values and a second data pattern of discrete values;

an imposer coupled to such receiver, the imposer for imposing a discrete value of the second data pattern over one or more values of the first data pattern;

an encoder coupled to the receiver and the imposer, the encoder for inserting within the digital signal one or more values of a third data pattern which are results of the imposer's imposing a discrete value of the second data pattern over one or more values of the first data pattern.

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23. **(CURRENTLY AMENDED)** An operating system embodied on a computer-readable medium having at least one program module comprising an encoding system as recited in claim 22.

24. **(CURRENTLY AMENDED)** A marked signal embodied on a computer-readable medium, the marked signal having ~~with~~ an encoded data channel therein, wherein such encoded data channel has a covert data channel imposed therein, the marked signal generated in accordance with the following acts:

receiving an original watermark data pattern of discrete values and a covert data pattern of discrete values;

imposing a discrete value of the covert data pattern over one or more values of the original watermark data pattern;

encoding results of the imposing within an unmarked signal to produce the marked signal.

25. **(ORIGINAL)** A marked signal as recited in claim 24, wherein the imposing comprises performing a Boolean operation with a discrete value of the second data pattern and one or more values of the first data pattern.

26. **(ORIGINAL)** A marked signal as recited in claim 24, wherein the imposing comprises XORing a discrete value of the second data pattern with one or more values of the first data pattern.

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27. **(ORIGINAL)** A marked signal as recited in claim 24, wherein

a pattern of discrete values may be encoded into the signal in one of multiple discrete states;

the imposing comprises encoding one or more values of the first data pattern into the digital signal into a state that indicates a discrete value of the second data pattern.

28. **(CURRENTLY AMENDED)** A marked signal as recited in claim 24, wherein the ~~digital~~ marked signal is ~~an digital audio~~ a digital audio signal.

29. **(ORIGINAL)** A marked signal as recited in claim 24, wherein the original data pattern is a watermark.

30. **(ORIGINAL)** A method for concealing data within a digital signal, the method comprising:

receiving a set of data having an original order;

permuting the set of data so that it is in a different order than the original;

encoding the permuted set of data into the digital signal.

31. **(ORIGINAL)** A method as recited in claim 30, wherein the permuting utilizes a permutation table to determine the order in which to permute the set of data.

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32. **(ORIGINAL)** A method as recited in claim 30, where in the set of data is a portion of a watermark.

33. **(ORIGINAL)** A computer-readable medium having computer-executable instructions that, when executed by a computer, perform a method for concealing data within a digital signal, the method comprising:

receiving a set of data having an original order;

permuting the set of data so that it is in a different order than the original;

encoding the permuted set of data into the digital signal.

34. **(CURRENTLY AMENDED)** A modulated signal embodied on a computer-readable medium, the modulated signal having ~~with an permuted data~~ a permuted data channel encoded therein, the signal generated in accordance with the following acts:

receiving a set of data having an original order;

permuting the set of data so that it is in a different order than the original;

encoding the permuted set of data into a digital signal to produce the modulated signal with ~~an permuted data~~ a permuted data channel encoded therein.

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35. (NEW) A method for concealing data within a digital signal, the method comprising:

receiving a first data pattern of discrete values and a second data pattern of discrete values;

imposing a discrete value of the second data pattern on a plurality of values of the first data pattern, wherein the imposing encodes a third data pattern into the digital signal.

36. (NEW) A method as recited in claim 35, wherein the imposing comprises performing a Boolean operation with a discrete value of the second data pattern and a plurality of values of the first data pattern.

37. (NEW) A method as recited in claim 35, wherein the imposing comprises XORing a discrete value of the second data pattern with a plurality of values of the first data pattern.

38. (NEW) A method as recited in claim 35, wherein

a pattern of discrete values may be encoded into the digital signal in one of multiple discrete states;

the imposing comprises encoding a plurality of values of the first data pattern into the digital signal into a state that indicates a discrete value of the second data pattern.

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39. (NEW) A method as recited in claim 35, wherein the digital signal is a digital audio signal.

40. (NEW) A method as recited in claim 35, wherein the first data pattern is a watermark.

41. (NEW) A computer-readable medium having computer-executable instructions that, when executed by a computer, performs the method as recited in claim 35.

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